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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Gerhard GEIS

Appl. No. Not Yet Assigned

Filed: Concurrently

For: LIFTING APPARATUS

Int'l. Appln. No.: PCT/EP01/15297

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Atty. Docket No. 31583-178427

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PATENT TRADEMARK OFFICE

Preliminary Amendment

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to calculation of the fees, please amend the claims attached to the international application as follows:

IN THE CLAIMS:

3. (Amended) A lifting apparatus according to claim 1, characterized in that the electric drive comprises two electric motors (10), wherein each electric motor (10) respectively drives a toothed belt (11), which engages in an energy-supply rod (5) on a shuttle boom (3).

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6. (Amended) A lifting apparatus according to claim 1, characterized in that the roller bearings are provided with rollers (15, 16, 17, 18), the rotational axes of which extend crosswise to the longitudinal axis of the respective shuttle boom (3).
8. (Amended) A lifting apparatus according to claim 6, characterized in that the rollers (15, 16, 17, 18) are positioned with springs.
9. (Amended) A lifting apparatus according to claim 6, characterized in that the crossbeam (4) back, positioned inside the main frame (2), of each shuttle boom (3), is provided with two opposite-arranged rollers (15, 16) on the crossbeam (4), wherein the first roller (15) projects over the top surface of crossbeam (4) and the second roller (16) projects over the underside of crossbeam (4), so that these rollers rest against the inside walls of the respective slide-in compartment (12, 12').
11. (Amended) A lifting apparatus according to claim 6, characterized in that a third roller (17), which is positioned on the underside of the respective slide-in compartment (12, 12'), is provided at each exit of each slide-in compartment (12, 12'), on which the crossbeam (4) of a shuttle boom (3) ends and that the underside of the respective crossbeam (4) is guided on this roller.

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12. (Amended) A lifting apparatus according to claim 9, characterized in that the first, the second and the third rollers (15, 16, 17) respectively extend over the complete width of a crossbeam (4).
13. (Amended) A lifting apparatus according to claim 11, characterized in that the third rollers (17) are respectively positioned on a spring buffer (24).
15. (Amended) A lifting apparatus according to claim 11, characterized in that each third roller (17) is assigned a buffer plate (19, 19'), which is arranged opposite the roller on the top of the respective slide-in compartment (12, 12') for guiding the respective crossbeam (4).
16. (Amended) A lifting apparatus according to claim 6, characterized in that additional rollers (18) for the side guidance of the respective crossbeam (4) project from the insides of the side walls of each slide-in compartments (12, 12').
17. (Amended) A lifting apparatus according to claim 1, characterized in that respectively one head piece (6) is glued onto the free longitudinal-side ends of the shuttle booms (3) for positioning the holders.

20. (Amended) A lifting apparatus according to claim 17, characterized in that electrically operated locking pins (7) are provided at the free ends of a head piece (6) that project on the side over a shuttle boom (3).
22. (Amended) A lifting apparatus according to claim 17, characterized in that at the free ends of a head piece (6) that project on the side over a shuttle boom (3), electrically operated corner guides (9) are provided as holders for positioning on a container.
29. (Amended) A lifting apparatus according to claim 27, characterized in that the surfaces of the primary component (38) and the secondary component (39), which are facing each other, are kept at a constant distance to each other by means of roller spacers (43).
31. (Amended) A lifting apparatus according to claim 25, characterized in that a securing device is provided for fixing a shuttle boom (3) in a predetermined displacement position.
34. (Amended) A lifting apparatus according to claim 25, characterized in that each crossbeam (4) of a shuttle boom (3) has a rectangular cross section, the cross-sectional surface of which is adapted to the cross-sectional surface of the cavity of the associated slide-in compartment (12, 12') and that the primary component (38) of a linear drive (37) is inserted into a recess (42) in one side wall of one slide-in compartment (12, 12'), so that the primary component

(38) is positioned opposite the secondary component (39) of the linear drive (37), which is arranged on one side wall of crossbeam (4).

35. (Amended) A lifting apparatus according to claim 25, characterized in that each crossbeam (4) has an H-shaped cross section and consists of a support element (4a) and two guide elements (4b), wherein the side walls of the support element (4a), which extend in vertical planes, are at a distance to the parallel extending side walls of the associated slide-in compartment (12, 12'), and wherein respectively one guide element (4b) rests on the top and underside of the support element (4a), so that these project over the side walls of the support element (4a) and fit tightly against the insides of the slide-in compartment (12, 12').
37. (Amended) A lifting apparatus according to claim 35, characterized in that the widths of the guide elements (4b) are adapted to the widths of the slide-in compartment (12, 12').
38. (Amended) A lifting apparatus according to claim 35, characterized in that the primary component (38) of the electric motor (30) is arranged on the inside of the side wall for the slide-in compartment (12, 12') and that the secondary component (39) is arranged such that it extends along one side wall of support element (4a) in longitudinal direction.

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49. (Amended) A lifting apparatus according to claim 39, characterized in that roller blocks (48) are provided on the main frame (2), inside of which the rollers of the roller bearings are positioned displaceable.
52. (Amended) A lifting apparatus according to claim 50, characterized in that the shuttle booms (3) are provided with crossbeams (4) that are guided inside slide-in compartments (12, 12'), wherein the spring leaves (49) are arranged on the undersides of the slide-in compartments (12, 12').
55. (Amended) A lifting apparatus according to claim 53, characterized in that the support elements (52) are made from plastic.


Example 6-10

REMARKS

This Preliminary Amendment is made to eliminate multiple claim dependency. Examination on the merits of the application is requested. A marked up version showing the changes made to claim 5 is attached.

Respectfully submitted,

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MARKED UP VERSION OF THE CLAIMS

The claims have been amended as follows:

3. A lifting apparatus according to claim 1 ~~one of the claims 1 or 2~~, characterized in that the electric drive comprises two electric motors (10), wherein each electric motor (10) respectively drives a toothed belt (11), which engages in an energy-supply rod (5) on a shuttle boom (3).
6. A lifting apparatus according to claim 1 ~~one of the claims 1—5~~, characterized in that the roller bearings are provided with rollers (15, 16, 17, 18), the rotational axes of which extend crosswise to the longitudinal axis of the respective shuttle boom (3).
8. A lifting apparatus according to claim 6 ~~one of the claims 6 or 7~~, characterized in that the rollers (15, 16, 17, 18) are positioned with springs.
9. A lifting apparatus according to claim 6 ~~one of the claims 6—8~~, characterized in that the crossbeam (4) back, positioned inside the main frame (2), of each shuttle boom (3), is provided with two opposite-arranged rollers (15, 16) on the crossbeam (4), wherein the first roller (15) projects over the top surface of crossbeam (4) and the second roller (16) projects

over the underside of crossbeam (4), so that these rollers rest against the inside walls of the respective slide-in compartment (12, 12').

11. A lifting apparatus according to claim 6 ~~one of the claims 6—10~~, characterized in that a third roller (17), which is positioned on the underside of the respective slide-in compartment (12, 12'), is provided at each exit of each slide-in compartment (12, 12'), on which the crossbeam (4) of a shuttle boom (3) ends and that the underside of the respective crossbeam (4) is guided on this roller.
12. A lifting apparatus according to claim 9 ~~one of the claims 9—11~~, characterized in that the first, the second and the third rollers (15, 16, 17) respectively extend over the complete width of a crossbeam (4).
13. A lifting apparatus according to claim 11 ~~one of the claims 11 or 12~~, characterized in that the third rollers (17) are respectively positioned on a spring buffer (24).
15. A lifting apparatus according to claim 11 ~~one of the claims 11—14~~, characterized in that each third roller (17) is assigned a buffer plate (19, 19'), which is arranged opposite the roller on the top of the respective slide-in compartment (12, 12') for guiding the respective crossbeam (4).

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16. A lifting apparatus according to claim 6 ~~one of the claims 6—15~~, characterized in that additional rollers (18) for the side guidance of the respective crossbeam (4) project from the insides of the side walls of each slide-in compartments (12, 12').
17. A lifting apparatus according to claim 1 ~~one of the claims 1—16~~, characterized in that respectively one head piece (6) is glued onto the free longitudinal-side ends of the shuttle booms (3) for positioning the holders.
20. A lifting apparatus according to claim 17 ~~one of the claims 17—19~~, characterized in that electrically operated locking pins (7) are provided at the free ends of a head piece (6) that project on the side over a shuttle boom (3).
22. A lifting apparatus according to claim 17 ~~one of the claims 17—21~~, characterized in that at the free ends of a head piece (6) that project on the side over a shuttle boom (3), electrically operated corner guides (9) are provided as holders for positioning on a container.
29. A lifting apparatus according to claim 27 ~~one of the claims 27 or 28~~, characterized in that the surfaces of the primary component (38) and the secondary component (39), which are facing each other, are kept at a constant distance to each other by means of roller spacers (43).

31. A lifting apparatus according to claim 25 ~~one of the claims 25—30~~, characterized in that a securing device is provided for fixing a shuttle boom (3) in a predetermined displacement position.
34. A lifting apparatus according to claim 25 ~~claims 25—33~~, characterized in that each crossbeam (4) of a shuttle boom (3) has a rectangular cross section, the cross-sectional surface of which is adapted to the cross-sectional surface of the cavity of the associated slide-in compartment (12, 12') and that the primary component (38) of a linear drive (37) is inserted into a recess (42) in one side wall of one slide-in compartment (12, 12'), so that the primary component (38) is positioned opposite the secondary component (39) of the linear drive (37), which is arranged on one side wall of crossbeam (4).
35. A lifting apparatus according to claim 25 ~~claims 25—33~~, characterized in that each crossbeam (4) has an H-shaped cross section and consists of a support element (4a) and two guide elements (4b), wherein the side walls of the support element (4a), which extend in vertical planes, are at a distance to the parallel extending side walls of the associated slide-in compartment (12, 12'), and wherein respectively one guide element (4b) rests on the top and underside of the support element (4a), so that these project over the side walls of the support element (4a) and fit tightly against the insides of the slide-in compartment (12, 12').

37. A lifting apparatus according to claim 35 ~~one of the claims 35 or 36~~, characterized in that the widths of the guide elements (4b) are adapted to the widths of the slide-in compartment (12, 12').
38. A lifting apparatus according to claim 35 ~~one of the claims 35—37~~, characterized in that the primary component (38) of the electric motor (30) is arranged on the inside of the side wall for the slide-in compartment (12, 12') and that the secondary component (39) is arranged such that it extends along one side wall of support element (4a) in longitudinal direction.
41. A lifting apparatus according to claim 39 ~~one of the claims 39 or 40~~, characterized in that a friction lining is installed on the outer surface of the drums (45) of drum motors (44).
43. A lifting apparatus according to claim 40 ~~one of the claims 40—42~~, characterized in that a friction lining is applied to the top side or underside of each energy-supply rod (5).
44. A lifting apparatus according to claim 39 ~~one of the claims 39—43~~, characterized in that the drums (45) of drum motors (44) are pushed with spring tension against the energy-supply rod (5).

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45. A lifting apparatus according to claim 39 ~~one of the claims 39—44~~, characterized in that the walls of the shuttle booms (3) have a lattice-type design, at least in some sections.
47. A lifting apparatus according to claim 45 ~~one of the claims 45—46~~, characterized in that at least some elements of a shuttle boom (3) are designed in the form of hybrid sandwich-type elements, consisting of layers of glass fiber materials and carbon fiber compound materials.
48. A lifting apparatus according to claim 45 ~~one of the claims 45—47~~, characterized in that elements of the shuttle boom (3), which are subjected to tensile loads, are made from glass fiber materials and that elements of the shuttle boom (3) that are subjected to pressure loads are made from carbon fiber compound materials.
49. A lifting apparatus according to claim 39 ~~one of the claims 39 - 48~~, characterized in that roller blocks (48) are provided on the main frame (2), inside of which the rollers of the roller bearings are positioned displaceable.
52. A lifting apparatus according to claim 50 ~~one of the claims 50 or 51~~, characterized in that the shuttle booms (3) are provided with crossbeams (4) that are guided inside slide-in compartments (12, 12'), wherein the spring leaves (49) are arranged on the undersides of the slide-in compartments (12, 12').

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55. A lifting apparatus according to claim 53 ~~one of the claims 53 or 54~~, characterized in that the support elements (52) are made from plastic.

Attorney Docket: 37934-179138

CERTIFICATE

I, Isolde U. Wasley, hereby declare that I am familiar with the English and German languages and am a professional translator from German into English and am employed as a translator in the Office of VENABLE, 1201 New York Avenue, N.W., Suite 1000, Washington, DC 20005-3917;

That I have prepared a translation of PCT Application PCT/EP 01/15297, filed on December 12, 2001 and entitled

“HEBEGGERÄT” [Lifting Apparatus]

said translation thereof being attached thereto and made a part of this declaration.

To the best of my knowledge and belief, the above translation is accurate and fairly reflects the contents and meaning of the original document.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on March 19, 2002.

Isolde U. Wasley

Isolde U. Wasley